

EFFECTS OF REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION ON MULTIPLE SCLEROSIS FATIGUE, SENSORY DISTURBANCES, AND OPTIC NEURITIS: A CASE REPORT

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Background

Multiple sclerosis (MS) is a chronic immune-mediated disorder of the central nervous system, leading to demyelination and neurodegeneration, which cause motor, sensory, and visual impairments among others. While disease-modifying therapies aim to slow progression, symptom management remains crucial. Repetitive transcranial magnetic stimulation (rTMS), a non-invasive neuromodulation technique, has shown promise in alleviating MS-related fatigue, spasticity, and cognitive impairment. However, its effects on sensory disturbances and optic neuritis remain underexplored. This case report investigates the potential of rTMS in treating these symptoms, contributing to growing evidence supporting its role as a versatile intervention for MS-related impairments.

Case report

A 27-year-old male bank accountant was diagnosed with relapsing-remitting multiple sclerosis (RRMS) after experiencing progressive symptoms, including left upper and lower limb hypoesthesia, fatigue, and right eye vision loss. MRI confirmed multiple demyelinating lesions. Initial treatment with high-dose glucocorticoids provided partial relief. Due to concerns about long-term medication effects, he opted for repetitive transcranial magnetic stimulation (rTMS). A 5 Hz protocol was administered over two weeks, resulting in significant improvements in fatigue, sensation, and vision. His Fatigue Severity Scale dropped from 6.2 to 2.7, and his EDSS score improved from 3.5 to 1.5. Follow-ups confirmed sustained benefits with no relapses. The patient regained functional independence, returning to full-time work with restored mobility and vision.

Conclusion

Our findings support the utility of 5 Hz rTMS over the motor cortex in improving sensory symptoms, vision, and fatigue in MS patients, reinforcing prior reports on the benefits of high-frequency stimulation on fatigue and suggesting that it could be beneficial in improving sensory symptoms and vision in Multiple sclerosis patients.

Keywords: NIBS, rTMS, neuroplasticity, MS, neuromodulation